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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/658,424	09/08/2000	Changming Liu	09725-005001	2970

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EXAMINER

ENGLAND, DAVID E

ART UNIT	PAPER NUMBER
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2143

DATE MAILED: 12/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/658,424

Applicant(s)

LIU ET AL.

Examiner

David E. England

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 09/01/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1 – 22 are presented for examination.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

3. (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 – 3, 5, 6 and 14 – 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chandran (6801500) in view of Fan et al. (6408005) (hereinafter Fan).

5. As per claim 1, as closely interpreted by the Examiner, Chandran teaches a method for allocating bandwidth in a network appliance where the network appliance includes a plurality of guaranteed bandwidth buckets used to evaluate when to pass traffic through the network appliance, the method comprising:

6. Providing a shared bandwidth bucket associated with a plurality of the guaranteed bandwidth buckets, (e.g. col. 4, lines 43 – 51, “*reserved and peak rate token buckets, interface token bucket*”);

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7. Allocating bandwidth to the shared bandwidth bucket, (e.g. col. 5, line 61 – col. 6, line 7); but does not specifically teach based on the underutilization of bandwidth in the plurality of guaranteed bandwidth buckets; and

8. Sharing excess bandwidth developed from the underutilization of the guaranteed bandwidth allocated to the individual guaranteed bandwidth buckets including borrowing bandwidth from the shared bandwidth bucket by a respective guaranteed bandwidth bucket to allow traffic to pass immediately through the network appliance.

9. Fan teaches based on the underutilization of bandwidth in the plurality of guaranteed bandwidth buckets, (e.g. col. 5, lines 39 – 54); and

10. Sharing excess bandwidth developed from the underutilization of the guaranteed bandwidth allocated to the individual guaranteed bandwidth buckets including borrowing bandwidth from the shared bandwidth bucket by a respective guaranteed bandwidth bucket to allow traffic to pass immediately through the network appliance, (e.g. col. 8, lines 10 – 23). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Fan with Chandran because sharing bandwidth between other links, (buckets), ensures that all bandwidth is utilized in areas that are receiving bandwidth intensive data and limits the occurrence of wasted bandwidth in areas that are fully functional with less bandwidth than previously allocated.

11. Referencing claim 2, Chandran teaches the shared bandwidth bucket is a token bucket, (e.g. col. 4, lines 43 – 51, “*reserved and peak rate token buckets, interface token bucket*”).

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12. Referencing claim 3, Chandran teaches the guaranteed bandwidth buckets are token buckets, (e.g. col. 4, lines 43 – 51, “*reserved and peak rate token buckets, interface token bucket*”).

13. Referencing claim 5, Chandran teaches each guaranteed bandwidth bucket is associated with a traffic shaping policy, (e.g. col. 7, lines 10 – 21).

14. Referencing claim 6, Chandran teaches a plurality of guaranteed bandwidth buckets are associated with a single traffic shaping policy, (e.g. col. 9, lines 51 – 62).

15. Referencing claim 16, Chandran teaches a network device comprising:

16. a first bucket configured to store tokens, (e.g. col. 4, lines 43 – 51, “*reserved and peak rate token buckets, interface token bucket*”);

17. a second bucket configured to store tokens, (e.g. col. 4, lines 43 – 51, “*reserved and peak rate token buckets, interface token bucket*”); and

18. determine if a size of traffic received at the network device exceeds a number of tokens stored in the first bucket, (e.g. col. 5, line 61 – col. 6, line 7), and but does not specifically teach a scheduler configured to:

19. transfer, when the size of the traffic exceeds the number of tokens stored in the first bucket, an appropriate number of tokens from the second bucket to the first bucket so that the first bucket includes a number of tokens that equals or exceeds the size of the traffic.

20. Fan teaches a scheduler configured to:

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21. transfer, when the size of the traffic exceeds the number of tokens stored in the first bucket, an appropriate number of tokens from the second bucket to the first bucket so that the first bucket includes a number of tokens that equals or exceeds the size of the traffic, (e.g. col. 5, lines 39 – 54 & col. 8, lines 10 – 23). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Fan with Chandran because of similar reasons stated above.

22. Referencing claim 17, Chandran and Fan teaches all that is similar in nature disclosed in the above claims here and furthermore, Chandran teaches cause the traffic to be forwarded after the transfer, (e.g. col. 5, line 61 – col. 6, line 7).

23. Referencing claim 18, Chandran and Fan teaches all that is similar in nature disclosed in the above claims here and furthermore, Chandran teaches determine if the second bucket includes the appropriate number of tokens, and prohibit the traffic from being forwarded when the second bucket includes less than the appropriate number of tokens, (e.g. col. 9, lines 32 – 62).

24. Claims 14 – 16, and 19 – 22 are rejected for similar reasons as stated above.

25. Claims 7 – 10, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chandran and Fan as applied to claims 1 & 5 above, and in further view of Troxel (6185210).

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26. As per claim 7, Chandran and Fan do not specifically teach the traffic shaping policy screens based on IP address.

27. Troxel teaches the traffic shaping policy screens based on IP address, (e.g. col. 17, lines 8 – 51, “*IP*”). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Troxel with the combine system of Chandran and Fan because it would be more beneficial in certain situations, for example where low-priority traffic in one Lan group flow is protected from high-priority traffic in a misbehaving (not conforming to specified flow spec) flow when both flows are forwarded through the same wangroup/VC.

28. As per claim 8, Chandran and Fan do not specifically teach the traffic shaping policy screens based on the source IP address.

29. Troxel teaches the traffic shaping policy screens based on the source IP address, (e.g. col. 11, lines 24 – 43). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Troxel with the combine system of Chandran and Fan because of similar reasons stated above.

30. As per claim 9, Chandran and Fan do not specifically teach the traffic shaping policy screens based on the destination IP address.

31. Troxel teaches the traffic shaping policy screens based on the destination IP address, (e.g. col. 16, lines 23 – 33). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Troxel with the combine system of Chandran and Fan because of similar reasons stated above.

32. As per claim 10, Chandran and Fan do not specifically teach the traffic shaping policy screens based on the protocol type.

33. Troxel teaches the traffic shaping policy screens based on the protocol type, (e.g. col. 11, line 11 – col. 12, line 2, “*IP/IP & IP/ATM*”). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Troxel with the combine system of Chandran and Fan because of similar reasons stated above. Furthermore, to would be more efficient for a system that processes specific data protocols to filter the data based on protocol type before the data reaches the processor.

34. As per claim 12, Chandran and Fan do not specifically teach the traffic shaping policy screens based on the type of service requested.

35. Troxel teaches the traffic shaping policy screens based on the type of service requested, (e.g. col. 11, line 11 – col. 12, line 2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Troxel with the combine system of Chandran and Fan because of similar reasons as stated above.

36. As per claim 13, Chandran and Fan do not specifically teach the traffic shaping policy screens based on the traffic content.

37. Troxel teaches the traffic shaping policy screens based on the traffic content, (e.g. col. 11, line 11 – col. 12, line 2). It would have been obvious to one of ordinary skill in the art at the time

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the invention was made to combine Troxel with the combine system of Chandran and Fan because of similar reasons as stated above.

38. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chandran (6801500), Fan (6408005) and Troxel (6185210) as applied to claim 1 above, and in further view of Applicant's admitted prior art.

39. As per claim 4, Chandran, Fan and Troxel do not specifically teach the guaranteed bandwidth buckets are credit/debit buckets. Applicant's admitted prior art suggests the use of credit/debit buckets being a modified type of token buckets, (e.g. page 2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the Applicant's admitted prior art with the combine system of Chandran, Fan and Troxel because using credit/debit buckets instead token buckets give the system more versatility that token buckets cannot perform, (i.e. credit/debit tokens bucket can be negative).

40. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chandran (6801500), Fan (6408005) and Troxel (6185210) as applied to claims 1, 5 & 7 above, and in further view of Makrucki (6208622).

41. As per claim 11, Chandran, Fan and Troxel do not specifically teach not specifically teach the traffic shaping policy screens based on the UDP/TCP port number. Makrucki teaches the traffic shaping policy screens based on the UDP/TCP port number, (e.g. col. 1, line 47 – col.

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2, line 33, "*TCP/IP, the routing algorithm*"). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Makrucki with the combine system of Chandran, Fan and Troxel because it would be more efficient for a system to utilize a widely use protocol that most system use than have different protocols that a foreign network is unfamiliar with and will not be able to understand the packet's format.

Response to Arguments

42. Applicant's arguments with respect to claims 1 – 15 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

43. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Izquierdo U.S. Patent No. 6192032 discloses Rate attenuation systems, methods and computer program products for reducing low priority video frame packets transmitted over a network.
- b. Patel et al. U.S. Patent No. 6522628 discloses Method and system for managing transmission resources in a wireless communication network.
- c. Lyon et al. U.S. Patent No. 6028841 discloses Distributed bus throttle and method.

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- d. Giroux et al. U.S. Patent No. 6370116 discloses Tolerant CIR monitoring and policing.
- e. Lyles et al. U.S. Patent No. 6563829 discloses Method for providing integrated packet services over a shared-media network.
- f. Gemar et al. U.S. Patent No. 6483839 discloses Apparatus and method for scheduling multiple and simultaneous traffic in guaranteed frame rate in ATM communication system.
- g. Duffield et al. U.S. Patent No. 6452933 discloses Fair queuing system with adaptive bandwidth redistribution.
- h. Bonomi et al. U.S. Patent No. 5864540 discloses Method for integrated traffic shaping in a packet-switched network.
- i. Basak et al. U.S. Patent No. 6560195 discloses Method and apparatus for leaky bucket based out-bound shaping in an ATM scheduler.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David E. England whose telephone number is 571-272-3912.

The examiner can normally be reached on Mon-Thur, 7:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A. Wiley can be reached on 571-272-3923. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David E. England
Examiner
Art Unit 2143

De

Primary Examiner
Art Unit 2143
William C. Vaughn, Jr.